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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,231	01/25/2002	Kazuhide Kubota	U 013838-2	6911

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LADAS & PARRY
26 WEST 61ST STREET
NEW YORK, NY 10023

EXAMINER

SHAH, MANISH S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No. 10/056,231	Applicant(s) KUBOTA ET AL.	
	Examiner Manish S. Shah	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 06/30/2004 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

The information discloser statement didn't submitted with form PTO-1449.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1-14, 16-21, 28-32 & 36-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyabayashi (# EP 0875544 A1) in view of Ikeda et al. (# US 5786835).

Miyabayashi discloses:

- A recording method wherein in ink composition comprising at least a colorant, resin emulsion particles, a water-soluble organic solvent and water (see Abstract; page: 3, line: 50-56) and a reaction solution comprising a reactant capable of forming coagulate upon contact with the ink composition (page: 20, line: 20-45);
- a method including the steps of depositing the reaction solution on the recording medium and depositing the ink composition onto the recording medium to record the image (page: 20, line: 20-45; page: 22, line: 12-25);
- the colorant is a pigment or dye (page: 17, line: 20-45);
- the ink comprises the molecular chain, which sites processing ultraviolet absorbing activity are selected from the aromatic monocyclic hydrocarbon (page: 5, line: 15-30, page: 8, line: 5-40);
- the ultraviolet absorber has a benzophenone, salicylate, cyanoacrylate, hindered amine skeleton (page: 5, line: 15-58; page: 6, line: 1-40);
- the polymer is composed mainly of thermoplastic polymer selected from ethylene vinyl acetate copolymer, ethylene-ethyl acrylate copolymer, polyvinyl acetate, polyester, polyurethane and polyamide (page: 4, line: 40-45);
- the polymer has a carboxyl group or sulfonic acid group as a functional group (page: 7, line: 9-30);

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- the colorant has a particle diameter not more than 10 μm more preferably not more than 0.1 μm (100 nm) (page: 17, line: 49) and the content of dye or pigment is 0.5 to 25% by weight based on the colorant (page: 18, line: 10-15);

- the pigment includes the polymer produced from a polymerizable surfactant having both nonionic and anionic hydrophilicity and monomer (page: 17, line: 50-58; page: 18, line: 1-12);

- the pigment dispersant has a monomer selected from fumaric acid, acrylic acid, acrylic ester (page: 7, line: 20-25);

- the content of the pigment dispersant is from 1 to 10% by weight (page: 4, line: 20-25);

- a polymer having ligand structure which can combine with the metal ion to form a chelate, is selected from glycine, aminopolycarboxylic acid, thiol, 2-pyrrolidone and which has a film-forming property and has an amount of 1 to 10% by weight and has a particle diameter of not more than 400 nm, glass transition temperature of 30 $^{\circ}\text{C}$ or below (page: 4, line: 18-35; see Abstract);

- the self-crosslinkable resin emulsion particles have a core-shell structure and shell has at least one functional group consisting of carboxyl, sulfone, amide, amino and hydroxyl group (page: 7, line: 33-55);

- the water-soluble organic solvent has boiling point of 180 $^{\circ}\text{C}$ or more (page: 18, line: 35-37);

- the reactant is a polyvalent metal salt, polyallylamine or polyallylamine derivative, wherein the polyvalent metal salt is nitrate or a carboxylate (page: 20, line: 28-41);
- the reaction solution comprises the triethylene glycol and glycerin (page: 21, line: 48-51);
- the reactant comprises the cationic inorganic fine particle or fine particles of cationic polymer (page: 20, line: 35-44; page: 21, line: 35-55);
- the fine particle of cationic polymer are selected from polyamides, polyurethane (page: 4, line: 40-45), and polymer produced by copolymerizing a cationic monomer represented by formula 1 as shown in the attachment (page: 12, line: 20-30);
- the steps of depositing the droplets of ink composition on recording medium before or after the steps of depositing the droplets of reaction solution (page: 22, line: 1-50);
- the ink jet recording apparatus having a means for depositing the reaction solution, means for depositing the ink composition, and means for controlling the means for reaction solution and ink composition (page: 22, line: 14-50; figure: 4-9).

Miyabayashi differ from the claim of the present invention in that:

- (1) The means and steps of washing the recording medium with polar solvent after finish printing;
- (2) The recording medium is non-absorptive to ink metallic surface;

Ikeda et al. teaches that to bring about an improvement in light fastness, the recording method including the steps of depositing color ink using any kind of ink jet

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recording apparatus (see figure: 13) and washing the recording medium with aqueous 10% by weight AlCl_3 solution and followed by further washing with polar solvent (water) (column: 20, line: 35-60). Ikeda et al. also teaches that the recording medium is metallic surface (aluminum), which is non-absorptive to the ink composition (column: 6, line: 55-65).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to incorporate the ink jet recording method taught by Turnbull et al. using the inkjet printer of Miyabayashi to get the sharp and bright printed image and which does not deteriorate due to bleeding, leaching fading or like.

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyabayashi (# EP 0875544 A1) in view of Ikeda et al. (# US 5786835) as applied to claims 1-14, 16-21, 28-32 & 36-74 above, and further in view of Nagai et al. (# JP 10-316909).

Miyabayashi and Turnbull et al. teaches all the limitation of the ink jet printing method except that the polymerizable surfactant is a compound represented by formula 2 as shown in attachment.

Nagai et al. teaches that to get the good dispersibility of the encapsulated particles in the ink, the ink composition consist of a polymerized surfactant is a compound represented by formula 3 as shown in attachment (see Abstract; [0010]).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the ink composition of the Miyabayashi by the

aforementioned teaching of Nagai et al. for the purpose of to getting the pigment dispersion excellent in long-term dispersion stability.

4. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyabayashi (# EP 0875544 A1) in view of Ikeda et al. (# US 5786835) as applied to claims 1-14, 16-21, 28-32 & 36-74 above, and further in view of Miyabayashi (# EP 0900831 A2).

Miyabayashi (544) and Turnbull et al. teaches all the limitation of the ink jet printing method except that the resin emulsion particles are formed of a polymer having a ligand structure, which combine with metal ion to form a chelate, which is selected from polyamine, glycine, thiol, 2-pyrrolidone, phosphoric acid and chelate is represented by formula 4 as shown in attachment.

Miyabayashi (831) teaches that to get the printed image with excellent rubbing and scratch resistance ink composition comprising resin having a chelate structure (page: 3, line: 10-20). Miyabayashi also teach that the resin emulsion particles are formed of a polymer having a ligand structure, which combine with metal ion to form a chelate, which is selected from polyamine, glycine, thiol, 2-pyrrolidone, phosphoric acid and chelate is represented by formula 5 as shown in attachment (page: 4, line: 15-38).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the ink composition of the Miyabayashi (544) by the aforementioned teaching of Miyabayashi (831) for the purpose of to getting the printed image with excellent rubbing and scratch resistance.

Allowable Subject Matter

5. Claims 22-24, 33-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

(1) With respect to claim 22, the resin emulsion particles are formed of polymer comprising a fluoroalkyl containing monomer.

(2) With respect to claim 33, the resin emulsion particles have a film forming property and have a reactivity with a divalent metal salt such that, when 3 volume of a resin emulsion containing 0.1% by weight of the resin emulsion particles is brought into contact with one volume of a 1 mol/liter aqueous divalent metal salt solution. The transmission of the light having a wavelength of 700 nm to become 50% of the initial value is not more than 1×10^4 sec.

(3) With respect to claim 35, the resin emulsion, which has been prepared so as to contain 10% by weight of resin emulsion particles have a contact angle on a Teflon sheet of not less than 70 degree.


(4) With respect to claims 23-24 & 34 are dependant on claims 22 & 33 respectively.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

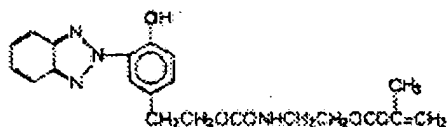
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Manish S. Shah
Primary Examiner
Art Unit 2853

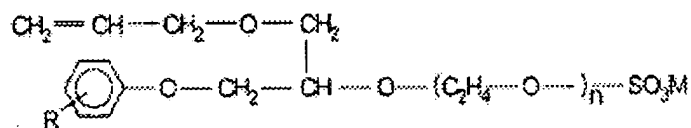
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Attachment

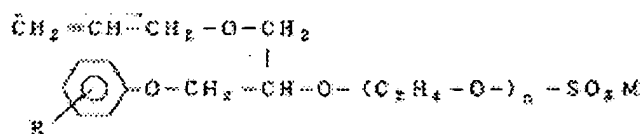
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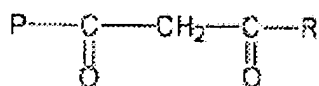
Formula 2:



Formula 3:



Formula 4:



wherein

P represents a polymer structure portion; and

R represents an alkyl or aryl group.

Formula 5:

